

# MARINE REVIEW.

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## Prominent Men of the Lakes.

The life of Capt. George P. McKay, whose portrait is presented herewith, and who is probably better known than anyone connected with the lake marine of to-day, will form an important part in the history of progress and commerce on these waters. Born aboard ship and raised almost from infancy to manhood on Lake Superior, during its earliest days of navigation by merchant vessels, Capt. McKay has seen every town and city on that great waterway, now famous for its enormous commerce, grow from the wilderness to their present importance. Only the Indian missions, now almost forgotten, were to be found on the great lakes in the early forties. Improvements in the connecting waterways of the lakes, involving millions of dollars, from the construction of the first small lock at Sault Ste. Marie to the completion of the Lime-kilns' crossing and the present immense government works at the Sault, are due as much to his untiring efforts in behalf of lake interests as any other cause, and he is still working along the same line at the head of the largest fleet of steel ships afloat on fresh water.

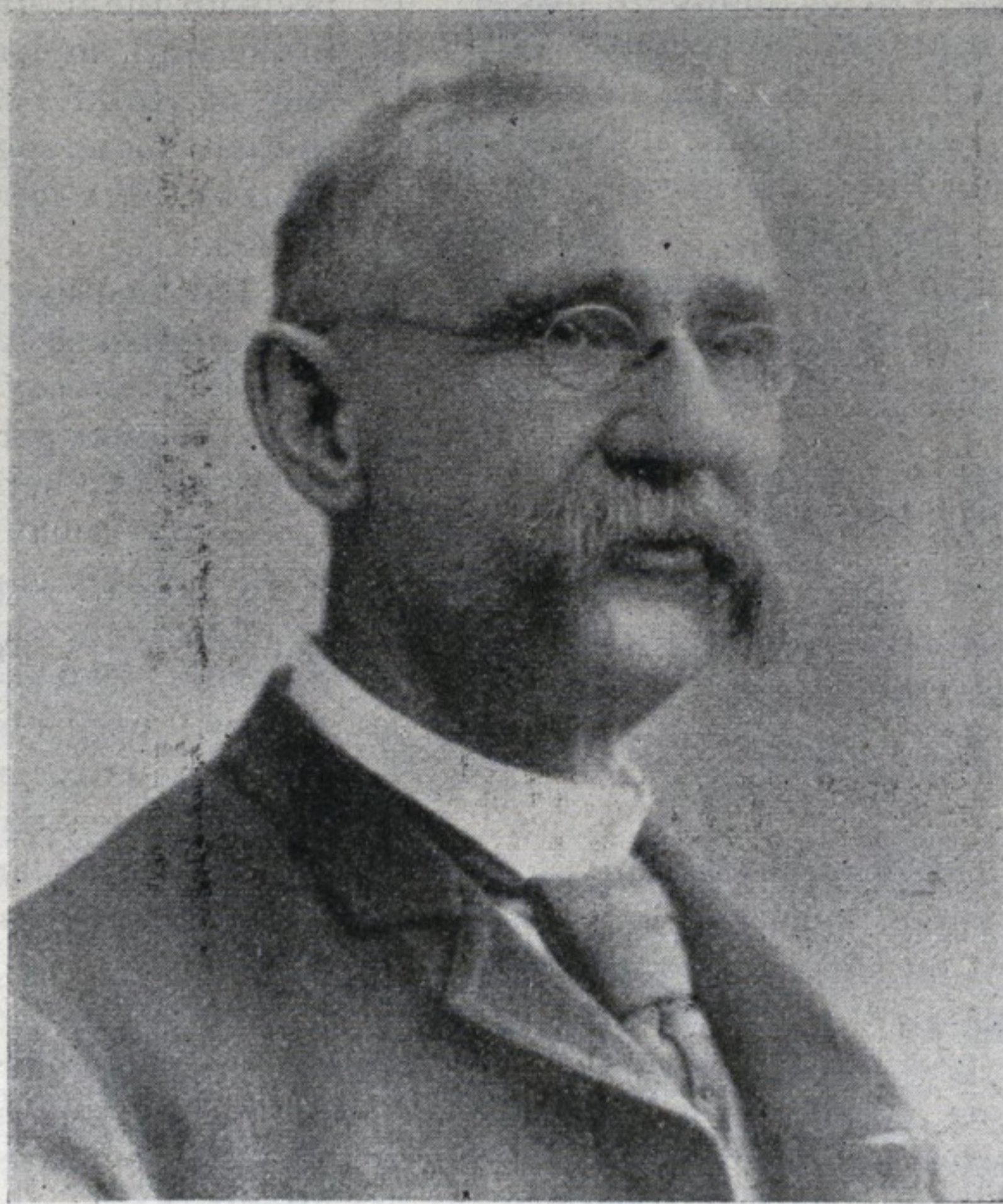
Capt. McKay was born Jan. 13, 1838, aboard the old steamboat Commodore Perry, in Swan creek, a small branch of the Maumee river, located where the Island house, of Toledo, now stands. Ship-carpentering and engine repairs in those days were made aboard the boat, and his father, Capt. John McKay, was living on the Perry and looking after her repairs when the son, now in his fifty-fourth year, was born. Capt. John McKay had been at sea during the greater part of his early life and came to the lakes in 1835. In 1845 when George was seven years of age the family moved to Sault Ste. Marie, the father going to sail a little schooner called the Algonquin, owned by a Boston firm then engaged in prospecting for copper. At that time there was not a lighthouse on Lake Superior, the first light being placed on Whitefish point in 1848. The only copper mining was on Isle Royal and the prosperous iron mining towns of to-day were unthought of. The Algonquin with three other schooners, the Siskowitt, Swallow and Uncle Tom, were the only boats then on Lake Superior, and they were small craft hauled over by land, on account of the rapids. The schooner Whitefish was also in the Lake Superior trade in 1845, but she was a Canadian hull, built above the canal and owned by the Hudson Bay Fur Company. Later the schooner Napoleon was added to the fleet, being launched in 1848 and sailed by Capt. John Stewart, brother of Capt. Al. Stewart, last season in the Ward line. All of the frames and other parts of this boat were prepared at Detroit and put together at the Sault. Of the four

boats referred to as comprising the early fleet of merchant traders, three were wrecked, the Algonquin's remains lying for many years between the docks at Superior; the Siskowitt was wrecked at the east end of Eagle harbor and the Swallow went to pieces at Portage Entry. The fourth, the Uncle Tom, was sailed down the rapids when business became dull and was afterward lost on one of the lower lakes.

Capt. McKay was given a few months at school during the winter season, but men were scarce, and he was pressed into service aboard ship during the summer. Prospectors and surveyors, the Burts, John and Austin, of Detroit, among them, would be taken from the Sault to Marquette in June and a time

would be arranged when the schooner would call for them in August or September. In the seven years between 1845 and 1852 the boats hauled over by land were the side-wheel steamer Julia Palmer, propeller Independence, propeller Baltimore, propeller Monticello, propeller Peninsula, propeller Manhattan, and schooners Fur Trader, Argyle and George W. Ford. The Ford was taken over by Capt. John Parker, who is still at Ontonagon. In July 1855, the canal was opened and the steamer Illinois was the first boat to pass through. In the fall of 1854 Capt. McKay with his father was aboard the Independence when she exploded her boilers just above the canal with a loss of seven lives, after this accident father and son made up their minds to quit sailing and they bought a farm at East Norwalk, Ohio. The farming experience was unsatisfactory and short-lived, however, and

both returned to sailing. Capt. George McKay shipped with Capt. William Robinson in the brig Greyhound and followed sail vessels for two years. In 1857 he went as wheelman with Capt. Edward Turner in the Northerner and later was advanced to second mate and mate under the same master in the Iron City. In the spring of '61 he obtained his first command, the propeller General Taylor, and afterward sailed the Mineral Rock, Pewabic and Ontonagon, before superintending the building of the propeller Peerless and bringing that boat out for Leopold & Austrian, of Chicago. In the spring of '73 Capt. McKay began service with the Cleveland Transportation Company, afterward looking after the building of some of the boats of that line also. He came ashore in 1882 at the request of the owners of the Cleveland line and has since been in charge of the big fleet controlled by members of the firm of M. A. Hanna & Co., who were controlling owners in the old Cleveland Transportation Company. During the past year Capt. McKay has been secretary of the Cleveland Vessel Owners' Association and the affairs of that body have been well cared for in his charge. Great credit is due him for interest shown in provisions for lights and other aids to navigation, especially in the Detroit and St. Clair rivers.



CAPT. GEORGE P. MC KAY.



### Change in the New Sault Lock.

Provisions are being made from time to time in the plans for the new Sault lock that will insure the accommodation of the lake traffic for many years to come, even though the increase be as great as in the past. It has been understood that with a view to giving a 20-foot channel between Buffalo, Duluth and Chicago, the present work in Hay lake being prosecuted to that end, there would be a depth of 21 feet on the mitre sill of the new lock. Gen. Poe and his engineers have with commendable forethought considered the variations in the stage of water during the past few years and as a result the plans, which were adopted when the mean stage assumed was higher than now, have been modified so that there will be 22, 3 feet on the mitre sill at that stage. In a letter to the REVIEW Gen. Poe says:

"The most important of the modifications is a change in the water surface to which the depth of 21 feet on the miter-sills is referred. The mean stage assumed when the drawing was made, was 1.3 foot higher than the one now adopted. The change grew out of the low stage of water of the past two seasons, and will give us 22.3 feet of water on the miter-sills at the stage first assumed, and involves a corresponding increase in the height of the lock walls. This change is one that will give great satisfaction to vessel men. It will make the new lock 6 feet 4 inches deeper than the present one. As progress is made in working up the details other modifications may be found desirable. If so they will be adopted without hesitation, but it is not thought possible that any other change will be made of importance comparable with the above. In an article recently published in the REVIEW the statement was made that the new lock would be ready for use in three years. I do not think it possible to accomplish so much in so short a time, but I do hope to have the work completed in five years from this spring. If the lock construction were distributed over a length of two miles, instead of being limited to an area 1,025 feet long by 200 feet broad, men and machinery enough could be used to materially reduce the time required for construction."

### Electrical or Gas Buoys for the Lakes.

At a recent meeting of the Lake Carriers' Association the subject of electric light buoys was taken up and Col. William Ludlow, of Detroit, was asked to give an opinion as to the advisability of adopting such a buoy for lake service. Col. Ludlow's answer is as follows:

Mr. C. H. Keep, secretary Lake Carriers' Association, Buffalo, N. Y., Dear Sir: I am in full sympathy with any plan or endeavor to improve the aids to navigation on the lakes, and regret that in reply to your letter of Jan. 5, covering enclosures relative to suggested use of electric light buoys in the lake districts, I am not able to give much encouragement. Electric light buoys were established two years ago in Gedney's channel at the entrance to New York harbor, and observing the statement made in two of the letters you sent me that the ship channel at New York was so marked from the Narrows to Bedloe's island, I wrote to the Third district for information and deferred my reply to your letter. I have heard this morning, and, as I supposed, the only buoys of this kind are the six marking both sides of the Gedney's channel, and it is not believed that the system will be extended, owing to the cost and precariousness of the service. You will find full report of these buoys in the appendix to the lighthouse board report for 1889. The above station is on Sandy Hook, and engineers are employed to operate it.

The objections to the use of electric light buoys are the frequency with which the lamps fail, the necessity of cabling out to them from a shore station, the liability of these cables to injury from vessels' keels or anchors, and the cost of service. It is evident that the displacement of the buoy or hooking of the cables would break the connections and put out the lights. In special and important cases, such as the Gedney's channel entrance to New York harbor, which can not otherwise be marked, the use of electric light buoys would be resorted to, but when other means are practicable, cheaper, and more reliable, they should be preferred. I believe that on the lakes, gas buoys, several of which are in use both by the United States lighthouse establishment and by the Canadian government, would, in the present condition of electric science, be preferable both in the matter of reliability and economy. For ordinary river lighting, I doubt the advisability of either. The occupation of shore points for ranges and turns would give much better results: First, as being free from interference by vessels and rafts; second, as furnishing a many times more powerful light; third, as being entirely under control of the keepers, and capable of immediate remedy, or the substitution of another lamp if

any accident occur. In the vicinity of Waugoshance, lighted buoys to mark the general navigation would be of no service. The distances are great, the lights at best would be comparatively feeble and of short range and would be invisible in thick weather, and the expense of laying and maintaining an electric system would be enormous in proportion to service rendered. For such localities as Gray's reef, White shoal, Simmons' reef, etc., nothing short of a permanent light, or at the least a light-ship, would answer. At less remote and exposed points, such as rocks off harbor entrances—the shoals near Port Huron for example—or individual dangers near important passages such as the Green bay entrances and elsewhere, and for isolated points not important enough to warrant large expenditures, such as the reef west of Spectacle reef, Graham's reef, and others. I am of opinion that lighted buoys will be found of marked advantage, but I should be inclined to prefer gas-lighted buoys, which can be taken up and placed independently anywhere and will burn for several weeks without any attention or labor, to electric light buoys, which call either for shore connections and electric plant, or the use of storage batteries, which are not reliable and in any case must be frequently recharged.

WILLIAM LUDLOW, Lighthouse Engineer.

### Discouraging Outlook at West Bay City.

Special Correspondence to the MARINE REVIEW.

WEST BAY CITY, Mich., Jan. 22.—Shipbuilding prospects are certainly not encouraging. Standing under the prow of the City of Chicago, as she rests on the immense ways built for the purpose of hauling her out of the water, one is reminded forcibly of the time when she left her stocks in this city less than a year ago, of the flourish of trumpets, the eloquence at the banquet following the launch, the grand excursion given by the builder when everything was completed, and the evidently bright prospects for the future of all concerned. Now the costly vessel is once more in the yard, undergoing a most extensive rebuild. Instead of an abundance of work for the army of men who surrounded the vessel a year ago, there is not enough to give employment for two hundred, and the prospects for even less than this number being employed are now being discussed.

The boat has been cut in two just forward of her engine bulkheads and lengthened fourteen feet. The work of putting in new beams and plates has already begun. A number of plates have also been removed from the after part of the vessel and the frames here will be swelled out so as to make her lines in proportion to her new length.

Congressman Wheeler has been in Washington now for nearly two weeks actively engaged in working for the passage of the shipping bill. It is understood that if this bill becomes a law two more vessels for the Saginaw Steamship Company will be begun at once. If it is not passed they will not be built. In a speech before the house of representatives Mr. Wheeler recently reminded that body that the only American built vessel on the Atlantic belonging to the class known as "ocean tramps" and which do a large share of the freight business of the world, was built in the pine woods of Michigan and that it was owned by Michigan capitalists.

Work is progressing rapidly at Davidson's yard. All the boats will be completed about the opening of navigation. "The Chenango will be a better boat than she ever was before," said Mr. Davidson recently. "I consider her purchase one of the best bargains I was ever interested in. People thought we paid a big price for the old hull, but we had to do it to get it, and I considered her worth several hundred dollars more than we paid."

### Bids for Removal of Wrecks.

Special Correspondence to the MARINE REVIEW.

DETROIT, Mich., Jan. 22.—Bids for the removal of the wrecks of the schooners M. E. Tremble and Ben Hur, sunk opposite Fort Gratiot, were opened at the United States engineers' office here, Saturday, and were as follows: Charlton Tug Line, Detroit, \$4,900; Dunbar & McGuire, Detroit, \$5,000; Charles W. Johns' on, Lewes, Del., \$14,500. The bids have been forwarded to Washington for action by the secretary of war.

The engine building concern of S. F. Hodge & Co., presents a very interesting sight. Ten engines are under construction there, a number that has never, as far as known, been equaled by any concern on the lakes. The list is made up of four triple expansion engines, three fore and aft compound, two steeple compound and one high pressure, comprising every style of marine engine. Two of the triple expansion engines go into the Big Four boats building at Davidson's West Bay City yard. They have cylinders 20, 32 and 54 inches with 42 inch stroke. One is for the Ferd. Schlesinger building at Milwaukee, having cylinders 21, 34 and 57 inches by 42 inches stroke, and being fitted with an independent air pump and condenser. And one with cylinders 18, 30, 48 inches and 36 inch stroke, having a surface condenser, is for McDougall's barge 114. It is understood that this engine will drive the boat at the speed of twenty miles per hour. The three fore and aft compound engines are for barges 108 and 112, building by McDougall, West Superior, and for E. C. Recor's boat



building at R. Holland's yard, Marine City, Mich. The engine for the latter, 20 and 40 by 36 inch stroke, is fitted with a Worthington independent condenser. The other two are 26 and 50 by 42 inch stroke, with surface condensers. Of the two steeple compounds one is 21 and 40 by 30 inches stroke and is for the boat building by Dulac at Mt. Clemens, Mich., for the Shoalwater Transportation Company, and the other is for the propeller A. E. Wilds and is 18 and 36 by 36 inches stroke. The last of the ten is the high pressure engine, 26 by 36 inch cylinders, building for the propeller Allegheny.

The ship building trade at this port remains very quiet and the prospects are that it will continue so for a good many months. The Detroit Dry Dock Company is giving the tug J. W. Bennett very extensive and thorough repairs, including new plankshear, rail, decks, cabins, etc. New boilers will also be placed in her. Altogether, between \$6,000 and \$7,000 will be expended on the boat. The Bennett has always ranked as the best and most successful of the second class tugs on the lakes and she will turn out this spring as seaworthy and powerful as the day she was first launched at Huron, Ohio, in 1876 for the man whose name she bears, and who died a number of years ago at Mackinac.

The work of transforming the propeller Toledo into a steam barge is nearly completed. About \$7,000 is being expended on her.

The propeller S. F. Hodge, of Ward's Line, receives a new boiler, built by the Dry Dock Engine Works.

Work on the immense new dry dock at the upper yard is progressing rapidly, and the expectation is that it will be completed by the time specified in the contract, May 1. This will be not only the longest but undoubtedly the most perfectly constructed dock on the lakes. Although it will, when filled, contain double the quantity of water that the old dock did, the pumping capacity will be such that it can be emptied in half the time. One feature in the construction worthy of notice, and which is entirely new, so far as I am aware, is a puddle wall entirely around the outside of the dock. It is formed by putting in two rows of sheath piling, 8 feet apart, down to the water line and packing the intermediate space solid with blue clay. This will render the dock absolutely water tight from the land side, and the gates will be so perfect that no leakage is expected in that direction.

Work on the big steel steamer at Wyandotte is being actively pushed. Nothing else is on the blocks there and there are no immediate prospects of any additional work.

### The Underwriters—Tonawanda Ore.

Special Correspondence to the MARINE REVIEW.

BUFFALO, N. Y., Jan. 22.—The annual meeting of the Inland Lloyds was to have been held Jan. 5, but for some reason the underwriters failed to show up. It has been decided to hold the meeting on Feb. 2 or 3 in this city. Capt. Daniel McLeod, manager of the vessel register, has been quietly pegging away at the forthcoming issue, but he can do nothing of consequence until appropriations have been made for the expenses of the work. The apportionment for the interested companies is one of the chief objects of the yearly session. It would be better for the register were its manager enabled to begin active work earlier in the year. The underwriters ought to give serious consideration to the making of premium rates for the fine steel and wooden steamers of the present day. It has been contended by owners, and acknowledged by some underwriters, that lower rates ought to prevail for such excellent risks, so that fewer would be placed abroad.

Capt. Dobbins, superintendent of the Ninth life-saving district, has forwarded to the department at Washington an offer for \$3,000 of a site for a station at Ashtabula Harbor. While not as desirable as might be wished, the site would answer the purpose. It is 40x126 feet, and is further up the river than the location first figured on. Capt. Dobbins says a large two-story structure could be erected thereon, the boathouse below and the dwelling upstairs, so that things would be convenient and comfortable. The leaning of the department is in favor of two-story buildings anyway at present. Though not so romantic as separate buildings with nice grounds, they are considered handier. Although the department is averse to paying for sites, so many having been donated, Capt. Dobbins thinks the offer will be accepted as the best thing that can be done. He feels confident that a station will be erected at Ashtabula as well as at Niagara before next fall.

After a shut-down of nine months, the blast furnace at Tonawanda was fired up last Tuesday. The plant has been thoroughly overhauled, improved and enlarged, and an entirely new stack furnace has been erected. The capacity now is 200 tons of pig iron per day. Barring accidents, the furnace will keep in blast for four years at least. This concern last season received by vessel 25,369 tons of ore from the upper lakes, all of which was on dock when the fire was started. It is intended to bring down next season about 50,000 tons, for the transportation of which a contract at \$1.10 from Escanaba has been taken already by the Rochester Transportation Company. That company owns the steamer Northerner, recently bought, and the canal schooners Boody, Mott, Morey and Mont-

calm, the total capacity of the five being 3,200 tons per trip. This charter, made some time ago, is the first ore charter for the coming season, but it cuts no figure in the general traffic. Owing to the delays involved, in running Niagara river and in unloading, there is thought to be little, if anything, in the deal for the vessel owners. Capt. James Davidson last fall brought down at the same rate three cargoes on his new vessels Panther and consorts Baltic and Adriatic, and came out just about even, without counting insurance, interest or other extraordinary expenses, and the tow carried about 5,000 tons.

David Bell, who built the first iron vessel on the lakes, the propeller Merchant, has in frame the steel tug for the Keystone Lumber Company, of Ashland. The model is unusually shapely for a tug. Her length is 90 feet, beam 19 feet, and hold 12 feet. Her engine, fore and aft compound, is 18 and 34 by 26 inches, and the boiler 14 by 8 feet, all built by Mr. Bell. The only other new lake work on hand at this port is a steel tug by the Union Dry Dock Company.

### Winter Work at Toledo.

Special Correspondence to the MARINE REVIEW.

TOLEDO, O., Jan. 22.—Builders and owners of the City of Toledo have great expectations as to the speed to be developed by the new passenger steamer. And they will not be disappointed if a sharp bow and easy lines have anything to do with skin resistance, which is to be fully overcome by those powerful inclined triple expansion engines. It seems strange that Toledo should originate a new style for lake passenger steamers, but then the engines are building at Cleveland. However, Toledo is moving in a marine way. H. P. Tobey's steel launch is quite handsome and nothing faster or finer is used to deliver supplies in any port on the lakes. A Marsh steam pump is used for boiler feeding. A Gilmore & Son are making a tow barge of the side-wheeler Saginaw, rebuilding the Josephine and Charles Wall and are building a scow for Rooney.

The Toledo Foundry and Machine Company are building machinery for four dredges, two sets of which are for L. P. & J. A. Smith. The Vulcan Iron Works are building an excavator for the Lake Superior Iron Company, that is without doubt the heaviest machinery and car of its kind that was ever put together. It is constructed so that it can push the dipper into a stock pile of frozen ore. The Eagle Machine and Iron Works have four upright engines under construction for the two sand suckers building for Degnon Brothers.

### Shipyard Work on Lake Michigan.

Special Correspondence to the MARINE REVIEW.

GRAND HAVEN, Mich., Jan. 22.—The steamer Charles West, of Mackinaw, is having new cabins put on at Duncan Robertson's yard; Johnston Brothers are repairing her boilers, and Bloecker & Co., are building a new cylinder for her engine. The dump scow at Robertson's yard is well under way. It is for White & Friant, of this city. A fish tug is also building for Troy, Lehman & Co., of Milwaukee. She will be 70 feet over all, 14 feet beam and 6 feet hold. Her boiler will be 5-3x8-6 and the engine 13x14. Johnston Brothers are building the boiler and Bloecker & Co., the engine. The steambarge Mary A. Boyce will be double-decked here.

The three-masted schooner Charles E. Wyman, owned by parties in this city last season, has been sold to Milwaukee parties. She will go into the lumber trade next season on the west shore.

Grand river is frozen but that does not close the harbor, for the Roanoke and Wisconsin break through to the warehouses. Their cargoes are mostly made up of grain just at present. Craft in winter quarters here consist of steambarges Ionia, A. C. Gregor, J. C. Ford, City of Milwaukee, Mary H. Boyce and Charles M. Gill; Sail, Lena Behm, Charles E. Wyman, Condor and Willie Lowtit.

### Manistee Harbor Work.

Special Correspondence to the MARINE REVIEW.

MANISTEE, Mich., Jan. 22.—The extension of piers and dredging provided for this harbor by the last appropriation will be a benefit that will be appreciated by marine interests. The dredging of the bar has been done in previous years, but the cut has been filled up by the first heavy storm and the work was without avail. As soon as the extension is made the cut will then be permanent. The new F. & P. M. steamer, No. 5, was damaged about the shoe on this bar recently. All five F. & P. M. steamers run from here and from Ludington to Milwaukee all winter. Salt makes up most of the cargoes. This side of the Wolverine state is now far ahead of the other in salt production.

The O'Connell lubricator is in use on the steamship Maryland, Chemung and many other of the first class boats on the lakes. And there is no case known where it has not given perfect satisfaction. O'Connell & Cahill are the patentees and so great is the demand that \$5,000 worth of material has been purchased and will be converted into "greasers" as rapidly as possible.

THE "MARINE REVIEW" FOR ONE YEAR AND "BEESON'S HAND BOOK"—\$2.50.



## Iron Mining.

## VALUE OF LEADING STOCKS.

Quoted by Chas. H. Potter &amp; Co., No. 104 Superior St.

Stocks.	Par Value.	Bid.	Asked.
Cleveland Iron Mining Company.....	\$ 25 00	\$ 17 00	\$ 18 00
Champion Iron Company.....	25 00	90 00	100 00
Chandler Iron Company.....	25 00	39 00	40 00
Chicago and Minnesota Ore Company.....	100 00	.....	110 00
Iron Cliffs Iron Company.....	50 00	120 00	125 00
Jackson Iron Company.....	25 00	90 00	100 00
Lake Superior Iron Company.....	25 00	69 00	70 00
Minnesota Iron Company.....	100 00	70 00	80 00
Pittsburg Lake Angeline Iron Co.....	25 00	145 00	.....
Republic Iron Company.....	25 00	26 00	28 00
Michigamme.....	25 00	8 50	10 00

The grand total of ore shipments from the Lake Superior mines by lake and rail during 1890, as reported by the mine managers, has finally been secured by one of the Michigan publications, Iron Ore, of Ishpeming, and the figures presented show an aggregate product of 9,038,939 gross tons from ninety-six producing mines, 681,158 tons of this going to the furnaces as all-rail shipments. The product of 1890 is thus slightly above the nine million limit predicted last spring, and it is truly a wonderful showing. The output of the year exceeds that of 1889 by 1,746,185 tons. The Marquette range having produced 3,028,902 gross tons, still holds the lead, being 181,116 tons ahead of the Gogebic range, while Escanaba leads the world as a shipping port with an aggregate of 3,778,209 gross tons. The Norrie mine leads the mines of the world as well as the big producers of Lake Superior with a total output of 906,728 tons, while ten others follow with a production ranging from 220,000 to 742,000 tons as follows: Chapin 742,834 tons, Minnesota 532,000, Ashland 435,949, Chandler 336,002, Cleveland 331,713, Lake Superior 318,321, Pittsburgh & Lake Angeline 261,681, Aurora 246,695, Champion 223,442 and Republic 220,065.

The product of the different mines is shown in the following:

MARQUETTE RANGE.	All Rail.	Lake and Rail.	MENOMINEE RANGE. (Continued.)	All Rail.	Lake and Rail.
American.....	16,200	21,000	Manganate.....	.....	6,844
Buffalo.....	11,346	100,464	Nana mo.....	18	3,441
Cambria.....	2,376	80,359	Norway.....	.....	61,717
Champion.....	.....	223,442	Paint River.....	1,370	62,654
Cleveland.....	70,450	331,713	Perkins.....	1,540	11,971
Cliff Shafts.....	16,383	188,776	Pewabic.....	.....	26,991
Detroit.....	2,022	6,080	Shafer.....	2,788	60,133
Dexter.....	4,084	9,136	So. Mastodon.....	.....	1,476
East New York.....	2,908	36,431	Sheridan.....	.....	595
Fitch.....	2,900	16,550	Vulcan.....	.....	104,996
Foster.....	21,949	21,949	Walpole.....	.....	2,940
Grand Rapids.....	21,181	26,426	Youngstown.....	6,115	44,460
Humboldt.....	.....	23,259	Total Menominee Range.....	117,064	2,282,237
Hortense.....	.....	16,246			
Imperial.....	.....	38,460			
Jackson.....	610	124,682			
Lake Superior.....	31,088	318,321			
Lilly.....	.....	31,812			
Lucy.....	800	43,483			
Marquette.....	6,179	23,692			
Milwaukee.....	.....	24,763			
Michigamme.....	17,288	80,777			
Negaunee.....	.....	76,488			
New York.....	.....	2,422			
Prout.....	.....	15,141			
Prince of Wales.....	4,652	32,415			
Pittsburgh & L. Angeline.....	2,788	261,681			
Queen.....	728	109,217			
Republic.....	39,155	220,065			
Republic Red'n Co.....	.....	3,915			
South Buffalo.....	5,091	146,383			
Salisbury.....	3,710	85,798			
Samson.....	1,218	1,218			
Volunteer.....	3,359	141,524			
Winthrop.....	45,045	109,576			
Total Marquette Range.....	270,864	3,028,902			
MENOMINEE RANGE.	All Rail.	Lake and Rail.			
Armenia.....	.....	26,649			
Aragon.....	2,705	46,609			
Chapin.....	71,055	742,843			
Commonwealth.....	.....	116,786			
Cyclops.....	.....	7,361			
Crystal Falls.....	.....	3,974			
Curry.....	.....	72,162			
Dunn.....	.....	156,963			
Flor nee.....	.....	218,570			
Great Western.....	7,063	72,546			
Hamilton.....	.....	17,072			
Half & Half.....	.....	1,496			
Hersel.....	610	955			
Hollister.....	.....	2,024			
Iron River.....	.....	155,458			
Ludington.....	1,538	97,355			
Mastodon.....	9,627	66,526			
Monitor.....	.....	31,139			
Millie.....	4,803	39,232			
Mansfield.....	7,832	18,303			
GOGEBIC RANGE.	By Rail.	Lake and Rail.			
Anvil.....	1,536	45,690			
Ashland.....	56,660	435,949			
Aurora.....	38,136	246,695			
Brotherton.....	17,486	80,486			
Cary.....	29,084	116,203			
Colby.....	1,282	193,038			
Con et.....	.....	2,882			
Davis.....	.....	1,497			
Eureka.....	.....	23,794			
Federal.....	4,150	21,150			
Father Hennepm.....	.....	63,903			
Germania.....	.....	52,000			
Iron Belt.....	7,020	110,368			
Lowell.....	4,209	6,247			
Montreal.....	4,718	16,704			
Mt. Hope.....	5,504	71,488			
Norrie.....	81,384	906,728			
Odanah.....	.....	1,065			
Pabst.....	57,444	172,060			
Palms.....	16,487	50,604			
Ruby.....	.....	11,694			
Sec. 33.....	25,225	126,963			
Superior.....	5,471	36,675			
Sunday Lake.....	.....	6,010			
Tylers Forks.....	10,682	10,683			
Windsor.....	8,139	37,210			
Total Gogebic Range.....	292,230	2,847,786			
VERMILLION RANGE.	By Rail.	Lake and Rail.			
Chandler.....	.....	336,002			
Minnesota.....	1,000	532,000			
Pioneer.....	.....	12,012			
Total Vermillion Range.....	1,000	880,014			
Grand Total.....	681,158	9,038,939			

The shipments by ports were as follows:

	Gross Tons.
From port of Escanaba.....	3,778,209
From port of Marquette.....	1,251,531
From port of St. Ignace.....	21,501
From port of Gladstone.....	91,095
From port of Ashland.....	1,618,296
From port of Two Harbors.....	880,014
By all rail.....	681,158
Grand total.....	9,038,939

Following is the output by ranges:

Total Marquette range.....	3,028,902 Gr. tons
Total Menominee range.....	2,282,237
Total Gogebic range.....	2,847,786
Total Vermillion range.....	880,014
Grand total.....	9,038,939

Work has been in process for over a year on a property known as the Elba, near Negaunee, and it is now reported that a deposit of ore of very fine quality has been struck. A shaft 110 feet deep was first sunk, then one drift was driven in a north-easterly direction, which is now in 150 feet from the main shaft, another south from the shaft being started shortly after, the latter being now in 110 feet. About two weeks ago work in the drift to the south was stopped, and a drill was employed to feel for the ore body. The drill cut 50 feet through a slaty formation, after which a body of ore 23 feet in thickness was pierced. Drifting in an oblique direction will soon be started in hope of striking the deposit about the center. On the first of January twelve men were set at work to start a new drift branching in a westerly direction from the old north drift, at a distance of 75 feet in from the main shaft. This drift was in about 25 feet last Wednesday, when the miners suddenly came upon a fine vein of hard Bessemer ore.

On the Gogebic range.—A general reduction of 15 to 20 per cent. in wages has been enforced all along the range. This is caused largely by the unemployed labor represented by the miners who have been laid off at mines in the west end of the county. At the Colby four new vertical shafts are being sunk, east of the present workings. In the new shafts, large cages will be operated, instead of the small skips now used at all mines on this range. The Palms, controlled by the Penokee & Gogebic Development Company, also makes material improvements by sinking two new shafts, which will be fitted with cages. At the Brotherton three shafts will be sunk from the 200 to 300 foot level, and it is claimed that 1891 will show a round hundred thousand tons to its credit. Two hundred men are now employed, and about 450 tons are raised daily. A dividend of \$10 a share is expected by stockholders in the Ashland company.

A great deal of attention will be given to the outcome of a contract recently entered into between the Hamilton Ore Company, of Iron Mountain, and the northern agency of the Thomson-Houston Electric Company for an electrical pumping plant, the first application of electricity for power purposes in the mines of Lake Superior. The Thomson-Houston Company guarantees to show in results on pumping water from the mine 77 per cent. of the energy contained in the fuel used under the boilers. Considering the fact that the power is conveyed from the engine house to the bottom of the mine a distance of 2,000 feet, this is wonderful showing in comparison with steam or compressed air, and it is claimed that it will result in a saving of almost two-thirds of the expense for fuel.

The supreme court of Wisconsin has just decided that subscribers to the stock of an incorporated mining company in that state can be held for the debts of the company on the unpaid amounts on the stock that they hold. The decision is the outcome of one of the old Gogebic cases and may result in a great number of law suits to recover claims against wildcat companies organized during the existence of the Gogebic craze, as many of these had among their stockholders responsible persons who subscribed for stock on which they paid but a small assessment. Under the ruling of the supreme court they are liable for the difference between what they paid on their stock and its face value on all legal claims against the company.

Miners in the Schlesinger properties quit work early last week and refused to return until their wages were paid. A great deal of excitement resulted in and around Negaunee, but



the men were given their November pay on Thursday, with due bills for December and a promise that the latter would be taken up in a few days. The force still held at the mines by their employers returned to work and it is more than probable that there will be no further trouble in this regard under the new management.

At the Dunn mine the stock pile exceeds 15,000 tons and much preparatory work is being done for next year's output. Considerable stoping will be done and another large open pit made, two of the shafts will be sunk deeper and a large amount of ore will be taken from the old open pit. Three of the ten foot drums are in use and the fourth will be at work in a short time. The new compressors will soon be ready to work—Norway Current.

The Riverside mine is a small property near the Republic which now gives promise of a return for several years of preparatory work. J. O. St. Clair has charge of the mine and is producing about fifty tons a day with a small force of men. A vein of black ore, fifteen feet wide has been encountered which is being worked full size. Breast stopes are being worked each way ten feet high.

A thirty year lease of the Glidden property, situated on the southeast quarter of section 27, 43-32, Michigan, was recently transferred to the Hope Mining Company, of Cleveland, E. W. Oglebay, president.

#### Material in One of the Lake Superior Ore Docks.

The Engineering and Mining Journal describes in detail, with illustrations, the new ore dock of the Duluth, South Shore & Atlantic Railway at Marquette, which was in operation during a portion of last season. The dock contains wood, such as sills, posts, planks, etc., to the extent of 4,125,000 feet, broad measure, in addition to 100,285 lineal feet of piles, while the shutes, hoists, tiller ropes, bolts and other iron and steel weigh 680 tons. The contract price of the structure complete, with equipments, was \$250,000, not including the cost of dredging, which labor was performed under a separate contract, and was done to make the dock accessible to vessels of deep draft.

#### A Lake Shipyard Surpasses Clyde and Tyne Yards.

The Marine Engineer, London, in reviewing the work of the ship yards for the past year has the following to say: "The Tyne Ship building Company have increased their output this year, by 2,469 tons, their total for the current twelve months being 18,016 tons. This, it may be remarked, is a very creditable twelve months' output for a yard with only four building berths, and with one exception it is larger than the output of any leading Clyde yard, as far as can be gathered from the returns published." This is interesting for it will be noticed that this Tyne yard has four stocks, the same number as have the Globe Iron Works Co., Cleveland, which put forth 20,330 tons, as against the 18,016 tons of the English yard, during the current twelve months. The Globe Company built their own engines and furnished from their works the larger part of the equipment. With one exception, the Marine Engineer says, the output of the Tyne yard exceeded the output of any leading Clyde yard, so we have a lake ship building company standing shoulder to shoulder with the largest yard on the Clyde, where steel ships are said to grow as plentiful as water lilies on the banks of a river.

#### The Dry Dock Association.

The most successful meeting ever held by the Dry Dock Association of the Lakes occurred at the Russell house, Detroit, on Wednesday of last week, with all the principal dry docks represented. The meeting was called to order by President Miller, of Chicago, and the election of officers for the ensuing year followed, resulting in W. H. Wolf, of Milwaukee, being elected president; F. Wright, of Cleveland, vice-president; and H. J. Mills, of Buffalo, who has occupied the position of secretary and treasurer

ever since the organization of the association, was duly re-elected. The principal business of the meeting was the improvement of the association and the careful discussion of its details. This occupied the time till an adjournment for dinner was taken. The matter was again taken up, and finally resulted in a mutual agreement on the part of all present to adopt the old card for the coming season, with but a few unimportant changes. A delegation of the Knights of Labor appeared before the association, presenting a verbal petition requesting those present to adopt an eight-hour day among their employes, and asking further that the employer only hire those men from the Knights of Labor whom they—the Knights of Labor, recommended; more especially were they representing the ship carpenters and calkers. Their petition, after a short discussion, was tabled for one year or until the next meeting of the association, to be held in Chicago in 1892.

#### Effect of the Rudder When Under Sternway.

"I have heard men who have been ten, twenty or thirty years in screw steamers say that the rudder had no effect when under sternway; some always put it amidships, others leave it a-port or a-starboard, quite indifferently; some wait until the ship gathers sternway and then shift it, and when under sternway and moving the engines ahead they don't move it again until she gathers headway. I can state my own experience, after twenty-one years' connection with screw steamers, which is that the rudder has a most definite effect when under sternway, and acts immediately the engines are reversed, whether the ship still has headway or not. I have tried it with both right and left-handed propellers some hundreds of times, and the ship's head will pay off more quickly when still under headway (after starting the engines astern with reversing helm) than she will do when she stops and gathers sternway. I have found it best to alter the engines and the helm at the same instant of time."—Capt Hutchinson, R. N. R.

#### Water and Fuel Used in Development of Horse Power.

It is a very easy matter to talk about 18,000 or 20,000 horse power, but few persons realize what it means or the enormous force it exerts. The new White Star steamships for instance, or the Inman Line's City of New York develop from 18,000 to 20,000 horse power. They have twelve boilers and seventy-two furnaces, worked with forced draft. Assuming that the engines will require eighteen pounds of steam per horse power, then one hundred and sixty tons of feed water must be pumped into the boilers every hour and one hundred and sixty tons of steam will pass through the engines in the same time. In twenty-four hours the feed water will amount to 3840 tons, occupying 133,240 cubic feet. This amount of water would fill a length of 493 feet of a canal 40 feet wide and seven feet deep. Taking the condensing water at thirty times the feed water it will amount to 4,800 tons per hour, or 115,200 tons in twenty-four hours, or for a six day transatlantic run not less than 691,200 tons, or 24,883,000 cubic feet. This amount of water would fill a cubical tank 295 feet on the side—a tank into which the Roman Catholic cathedral, steeples and all, or the New York Times building, could be put and completely covered up. The coal consumption is not less interesting. Four hundred tons a day are burned on the 20,000 horse power pressure. This would fill 400 wagons. It requires for its combustion 8,609 tons of air, occupying a space of 222,336,000 cubic feet. It is impossible to put these figures in a shape such that they may be grasped by the average reader, but enough has been cited to show, nevertheless, that the circulating pumps and fan engines of such ships are a hard working lot.—The Iron Age.

The old northern furnace at Marquette is again in commission and will make charcoal iron for car wheels. The Northern was built in 1860 as an anthracite furnace and rebuilt in the 70s at a cost of over \$50,000, but the company remodeling it went down with the panic. The stack is fifty feet high with a ten and one-half foot bosh and is expected to produce between fifty and sixty tons of iron per day. J. M. Longyear, J. M. Wilkinson, F. B. Spear, J. G. Reynolds and N. M. Kaufman are the directors of the new company and R. H. Jones is manager.



# MARINE REVIEW.

DEVOTED TO THE LAKE MARINE AND KINDRED INTERESTS.

JOHN M. MULROONEY, . . . . . } PROPRIETORS.  
F. M. BARTON, . . . . . }

Published every Thursday at No. 510 Perry-Payne Building, Cleveland, O.

Lake Tonnage from Lloyd's American and Canadian Insurance Registers for 1890:

	Number of boats.	Net tonnage.	Value.
American.....	2,053	846,489	\$58,113,300
Canadian.....	647	132,971	3,989,130
Totals.....	2,700	979,460	\$62,102,430

According to the report of William W. Bates, United States commissioner of navigation, 46 per cent. of the new tonnage of the country was built on the lakes during 1889. This is a percentage greater than the work of the Atlantic coast and western rivers combined, and almost equal to the whole work on the Atlantic and Pacific coast. In 1890 the tonnage built on the lakes is but very little less than that built on the Atlantic and Gulf coast. Tonnage built on the lakes during the past five years was as follows:

	No. of boats.	Net Tonnage.
1886.....	85	20,400.54
1887.....	152	56,488.32
1888.....	222	101,102.87
1889.....	225	107,080.30
1890.....	218	108,515.00
Total.....	902	393,597.03

Annual tonnage entries and clearances of the great seaports of the world, for 1889: New York, 11,051,236 tons; all seaports in the United States, 26,983,315 tons; Liverpool, 14,175,200 tons; London, 19,245,417 tons.

St. Mary's Falls and Suez canal traffic: Number of boats through St. Mary's Falls canal in 1889, 234 days of navigation, 9,579; tonnage, 7,221,935. Number of boats through Suez canal during 1889, full year, 3,425; tonnage, 6,783,187.

Tonnage passing through Detroit river during 234 days of navigation in 1889, amounted to 36,203,606 tons. Ten million tons more than the entries and clearances of all the seaports in the United States, and three million tons more than the combined foreign and coastwise shipping of Liverpool and London.

Entered at Cleveland Post Office as Second-class Mail Matter.

THERE is evidently some powerful influence underlying the action of the commerce committee of the United States Senate in failing to make a report on the bill authorizing the Detroit Railroad & Tunnel Company to construct a tunnel under the Detroit river from the city of Detroit to Windsor, Ont., and unless the vessel owners of the lakes take immediate action toward pushing this measure through the present congress, they may find themselves confronted by another bridge bill in the next congress with the attending expense and annoyance of fighting it if not danger of its passage. The Washington influence that is holding the bill back in the interest of a high railway bridge is certainly very powerful or the bill would not remain buried so long in the commerce committee. The house passed the bill unanimously and there is reasonable assurance of its passage in the senate if brought to a vote. The Cleveland Vessel Owner's Association and the Excelsior Marine Benevolent Association have adopted resolutions requesting the immediate passage of the bill by the senate, and other lake organizations should do likewise. The Detroit Railroad & Tunnel Company has been incorporated by the state of Michigan and presents every assurance of beginning work on the tunnel immediately under the provisions of the congressional measure, which is very fair to all interests, in addition to being binding on the company seeking the right to construct the tunnel. The claim that the tunnel company lacks stability will not stand. Luther Beecher, one of the leaders of the enterprise, is eccentric in some respects but he is a man of great means and he is ready to put his money into the project.

THE supervising inspectors of steam vessels are about to begin the work of their annual meeting in Washington and the association of marine engineers will hold its annual convention there in a few days. Both of these meetings are of importance

to the vessel interests. The engineers' meeting was so arranged as to have both organizations in Washington at the same time. It is expected that the national association of engineers in addition to making some suggestions to the steamboat inspectors regarding present rules governing the service, will prepare certain legislative measures regarding the trade, but little has been said as to the nature of such measures. The inspectors will consider several changes of special importance to the lakes in the general steamboat inspection laws and the proceedings of both meeting will be watched with interest.

## Among the Ore Dealers.

There is nothing doing among ore shippers or vessel owners who engage extensively in the business of carrying ore, to attract attention. The closing of the furnaces in the Chenango and Mahoning valleys has, if anything, made the situation less interesting. It is about certain that the Iron Cliffs and Cleveland iron mining companies will consolidate and this is about the only announcement worthy of note from the producers. Both properties are among the leaders in the Lake Superior region and the controlling stock in both is held by the same people. It may be necessary to make the consolidation outside of Michigan on account of the laws of that state. Although the money market shows decided improvement, there is little doing in mining stocks and no signs of better prices. Such of the ore men as have anything at all to say of next year's business talk only of a reduced output. In line with the general run of bear arguments the ore dealers figure that there will be at least 2,000,000 tons of ore on dock when navigation opens in the spring. This would place the year's consumption at only 7,000,000 tons, as there was 1,000,000 tons on dock when navigation opened last spring and the lake shipments were about 8,000,000 tons. If according to estimates, the requirements of the furnaces during the year to come will be at least twenty-five per cent. less than during the year ending with the opening of navigation, it would seem that 5,250,000 would be all that should be sent forward from the mines. This, however, is only speculation and it is fortunate that the vessel owners as well as the ore dealers are not pushing matter but have quietly decided to await the outcome of a depressed iron market.

## Cleveland Matters.

The barge Alaska, owned by J. E. Potts Salt and Lumber Company, was sold by the United States marshal last week to the N. Mills Lumber Company, for \$2,425. The Alaska was engaged in the lumber trade last season.

It is expected that both of the boats building here for the Goodrich Transportation Company will be launched early in March. The steel boat at the Globe yard is fully plated and work on the wooden boat is fully up to expectations.

The Cleveland and Lakeside Transportation Company has purchased another boat, the Ossifrage, last season in the Detroit river service, for its line between Cleveland and the Lake Erie islands. The Ossifrage will run in connection with the little steamer Lakeside. The Ossifrage was bought through Mitchell & Co. The purchase price is reported at \$30,000.

The engines of the Wm. Edwards will be compounded at the shops of the Cleveland Ship Building Company. The saving in fuel it is figured, will amount to 20 or 25 per cent. There has probably not been a half dozen single engines put in new steamers during the past ten years and far-seeing owners of boats are having their engines compounded. There are two good sides to this work, it profits the owner and the engine building concern.

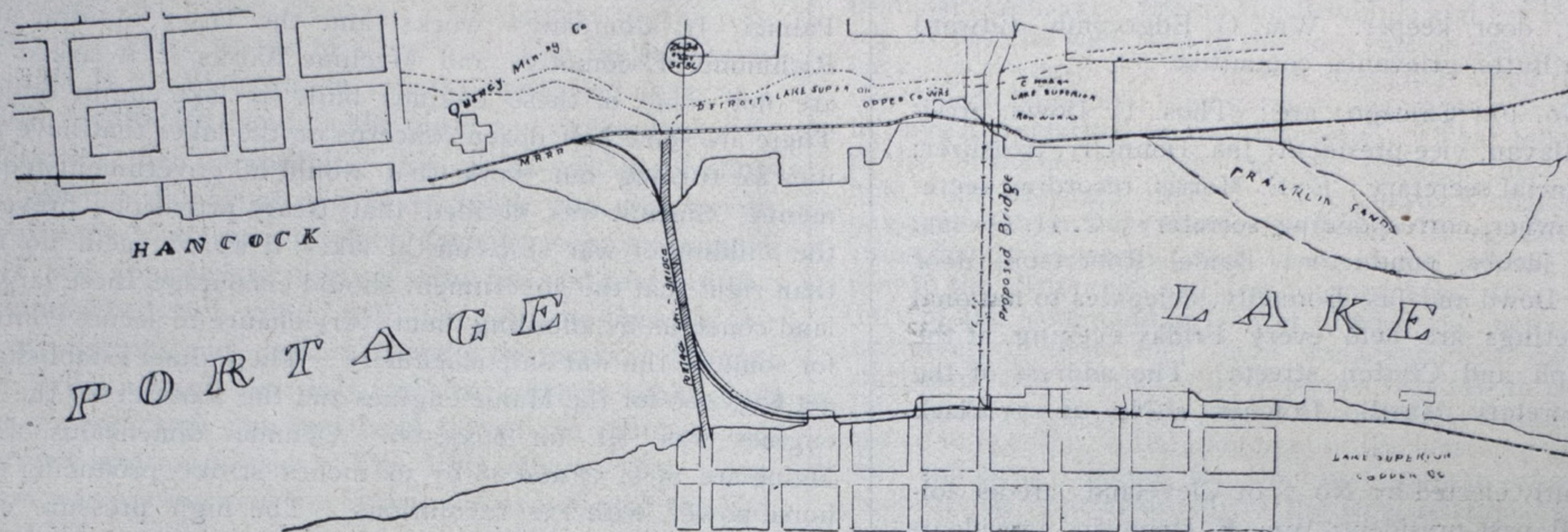
Capt. H. J. Johnson, who has been very ill for some time past is disposing of some of his vessel property. He sold a quarter interest and control of the propeller H. A. Tuttle to Capt. Peter Minch for \$20,000 and a like interest in the propeller Business with control to C. F. Palmer for \$10,000. When these transfers were made negotiations for the sale of the propeller Presley were pending. The propeller V. Swain and consort Helvetia are also on the market.



### Proposed Second Bridge Across Portage Lake.

A drawing of that portion of Portage lake between Hancock and Houghton, where it is proposed to construct another bridge, is presented in the accompanying illustration. If the bridge is built it may prove a serious obstruction to navigation and the drawing was procured for the purpose of acquainting the lake interests with the site selected for the bridge. The board of supervisors of the county has been petitioned to submit to the voters in the spring the question of issuing bonds for the building of the bridge and the general sentiment seems to favor such a

move. It would seem from the drawing that a second bridge in this part of the lake would prove a decided hindrance to boats taking on and discharging cargoes in the immediate vicinity of such a structure. The site, as shown by the dotted lines is about 1,000 feet east of the present bridge, across the only wide spot between the present bridge and the Franklin stamp sands and close to the most important docks. A bridge at this point would make it almost impossible for boats to land at the Detroit & Lake Superior Smelting Works dock.



SITE SELECTED FOR PROPOSED SECOND BRIDGE ACROSS PORTAGE LAKE.

### Around the Lakes.

St. Clair river is clear of ice between Port Huron and St. Clair but teams are crossing at Marine City.

William McKenzie, aged 48 years, fell from a scaffold in Davidson's shipyard at West Bay City, striking on his head. He died the following day.

The steamer Charles Stewart Parnell, Capt. P. Griffen, has been chartered at Chicago to load and carry 75,000 bushels of wheat to Buffalo at 3 cents.

Capt. Alex. Milligan, of the steamer Isaac May, which is being re-built at Port Robinson, recently fell from the boat to the bottom of the drydock. Several of his ribs were broken, but he will recover.

The Chicago Dry Dock Company held its annual meeting recently. Capt. W. J. Keith was re-elected president; James Mowatt, superintendent; B. Ripley was appointed secretary, vice H. A. Christie, resigned.

Grattan & Jennings have contracted with the Erie road to build a new 900 foot dock at Buffalo in place of the old Blake dock on the Blackwell canal. The new dock will be ready for use at the opening of navigation.

Capt. Morley, of Marine City, has laid down the keel for a steamboat 180 feet long, and has the greater portion of the timber for the boat on hand, but there is probably no truth in the report that he proposes to build another big boat if the timber can be secured.

The information from which was written "Chased by a Revenue Cutter," that attracted so much attention in last week's REVIEW, was furnished by Chief Engineer Elliott, of the Goodrich Line. He was a close friend of Mr. Reed, who was the hero of the chase.

As a result of petitions from commercial bodies of Milwaukee and other Lake Michigan cities, Senator Sawyer has introduced a bill to appropriate \$90,000 for the construction of a new revenue cutter, to be used on the lakes, to take the place of the Andy Johnson, which is old and unseaworthy.

The Marine National Bank, of Sweden, is the name of a banking corporation through which M. A. Hanna & Co., the Minnesota Dock Company, the Youghioghenny Coal Company

and others propose to pay workmen and otherwise facilitate money matters at Ashtabula Harbor. The capital is \$50,000 and the officers are: George B. Raser, president; Edward S. Henry, vice-president; and E. W. Savage, cashier.

Among the steamboat engineers at Sarnia, Ont., who have passed satisfactory examinations for engineers' certificates are the following: Jonathan Lowry, Windsor, fourth class; Enoch Chapman, Windsor, fourth class; A. H. B. Neff, Humberstone, fourth class; J. F. Taylor, Jr., Windsor, second class; Wm. R. Burnett, Windsor, fourth class; Alexander Cook, Point Edward second class; William McCallum, Goodrich, third class.

Canal Forwarder's Association, made up of Erie canal boat owners, has gone the way of most combines. The railroads succeeded in their efforts to keep freights low and at the same time get the grain away from the canal. The boats were compelled to wait at Buffalo for loads and then got them only by lowering the rates. This made them discontented, and as the association was a stock company it was agreed to make the necessary application for leave to wind up the business and retire.

"The members of the life-saving crews preserve lives instead of destroying them, and certainly are entitled as much to a pension as the soldiers," said Lieut. C. H. McClellan, assistant inspector of the United States Life Saving Service, at the Palmer house yesterday. Lieut. McClellan is in charge of the stations along the New Jersey coast from Cape Hope to Cape May, and says he has been compelled to drop many a veteran from the service simply because he was too old to work—Chicago Tribune.

Schuyler & Kremer, counsel for the marine interests of Chicago, have received a letter from Washington, regarding the controversy of the Canal street bridge. Conger & Conger, the attorneys who have the matter in charge at Washington, write that they have presented the facts to the secretary of war, but are unable to give an opinion as to whether that official has the authority to prevent Mayor Cregier from obstructing the river by allowing the bridge to be built. The Messrs. Conger say that, while they are inclined to think that Secretary Proctor will take up this matter and settle it by assuming control of the Chicago river, the question raised by Mr. Schuyler is of the utmost importance and entirely new. They think for this reason the secretary of war will be slow to act, and that it may be several weeks before he will give an opinion in the case.



**M. E. B. A.****OFFICERS OF DIFFERENT BRANCHES.**

No. 67 of Saugatuck, will be represented in the national convention by S. L. Newnham. This branch meets every Wednesday evening, and the address of the corresponding secretary, W. S. Bradley, is box X, Saugatuck, Mich. Officers recently elected are as follows: S. L. Newnham, past president; John Parks, president; Henry Randall, vice president; Wm. Wilson, treasurer; Wayne Coates, recording secretary; William S. Bradley, corresponding secretary; Wm. G. Edgecomb, financial secretary; Byron Hopkins, chaplain; Samuel Shaver, conductor; Joseph Hancock, door keeper. Wm. G. Edgecomb, Edward Loun and Joseph Butts, grievance committee.

Officers of No. 4 of Chicago, are: Thos. F. Dowd, president; Geo. T. Galavan, vice-president; Jas. Donnelly, treasurer; D. W. Wise, financial secretary; E. E. Morris, recording secretary; Murillo Downer, corresponding secretary; C. H. Owens, chaplain; Wm. Jacobs, conductor; Daniel Robertson, door keeper; Thos. F. Dowd and Jas. Donnelly, delegates to national convention. Meetings are held every Friday evening, at the corner of Randolph and Clinton streets. The address of the corresponding secretary, Murillo Downer, is No. 22,177 Clark street.

Officers recently elected by No. 2, of Cleveland, are as follows: J. B. Wood, past president; Wm. E. Donovan, president; Albert Igart, vice-president; John Aiken, treasurer; Silas Hunter, recording secretary; Perry Swain, financial secretary; Edward Donaldson, corresponding secretary; J. P. Black, chaplain; Frank Myers, conductor; Andrew McDonald, doorkeeper; John Miller, outer doorkeeper; O. N. Steele, J. B. Wood and Wm. E. Donovan, trustees; William Kennedy and Percy Swain, representatives to national convention.

The Clayton, N. Y., association, No. 46, held a special meeting on the 13th inst. in honor of a visit from National President John H. Galwey, who spent the day at that place on his way to Washington. No. 46 meets every Thursday evening in the post-office building. Officers recently elected are: T. J. Rees, past president; L. A. Kenyon, president; D. W. Farrell, vice-president; E. W. Bradway, recording secretary; J. A. Cook, financial secretary; E. M. Cook, corresponding secretary; J. A. Cook, treasurer; J. A. Cook, conductor; C. P. Knight, doorkeeper; L. A. Kenyon, D. W. Farrell, E. M. Cook, trustees.

Officers of No. 1, of Buffalo, are as follows: Jas. Brooks, past president; F. Miller, president; Julius Rausch, vice-president; H. M. King, treasurer; J. Raney, financial secretary; Jas. Blair, recording secretary; Wm. McNulty, corresponding secretary; Michael Laney, chaplain; L. J. Crone, conductor; Thos. Ingram, door keeper; J. H. Gregory, delegate to national convention. The association meets every Saturday evening at No. 40 Niagara street, where a small hall has been neatly fitted out.

No. 3, of Detroit, meets every Wednesday evening at No. 17 Woodward avenue. Officers recently elected are as follows: Joseph Hayes, past president; Wm. T. Walker, president; F. J. Teiper, vice-president; J. K. Finehart, chaplain; F. Kenyon, financial secretary; T. J. Kelly, recording secretary; Albert L. Jones, corresponding secretary; John W. McClure, conductor; Charles Shurick, doorkeeper. James H. Kendall, treasurer; J. H. Reid, J. M. Cronenweth, delegates to national convention.

No. 48 of Sandusky, will send no representative to the national convention. The address of the corresponding secretary, Mr. Chas. C. Smith, is Monroe corner of Jay street. Officers elected recently are: Henry Jesson, past president; John Ewing, president; John Hegemer, treasurer; Fred Schenk, financial secretary; Chas. C. Smith, corresponding secretary. Frank Wilkinson, recording secretary; Fred Bremer, chaplain; John Magnussen, conductor; Jarvis Cater, door keeper.

Officers recently elected by No. 73, of Green Bay, are as follows: James Dunlap, past president; H. F. Spencer, president; Nathan Scofield, vice-president; H. P. Thrall, treasurer; L. Ras-musen, recording secretary; Alfred Larsen, financial secretary; H. F. Spencer, 904 Crooks street, corresponding secretary; Joshua Ritchie, chaplain; Manuel Madson, conductor; Paul Denny, door-keeper; H. F. Spencer, representative to national convention.

**Engines for the New Cruisers.**

Apropos for the building of engines for the U. S. cruisers Maine and Texas, the former under construction in the N. F. Palmer, Jr. Company's works, and the latter building at the Richmond Locomotive and Machine Works, it is asked why are not some of these engines built by lake engine builders. There are some half dozen concerns on the lakes that have facilities for turning out work that would fill government requirements. Since it was decided that treaty provisions prevented the building of war ships on the lakes, it would seem no more than right that the government should encourage these large inland concerns by affording them every chance to secure contracts for some of the war ship machinery. The Palmer establishment got \$735,000 for the Maine engines and the contract for the Texas engines was let for \$635,500. Cylinder dimensions of the Maine are 35½, 57 and 88 by 36 inches stroke, producing 9,000 horse power, with 132 revolutions. The high pressure cylinders will be aft instead of forward and they will be steam jacketed, the low pressure cylinders being arranged so that they can be disconnected in order to economize high speed at low powers. Cylinders of the Texas engines are 36, 51 and 78 by 39 inches stroke, 123 revolutions, producing 8,500 horse power. The Maine will have eight single ended return fire-tube type boilers being allowed 135 pounds and the Texas will have four double ended boilers which will be allowed 150 pounds pressure. What lake engine builder will receive the next government contract?

**The Penberthy Automatic Injector.**

The Penberthy Injector Company, Detroit, Mich., has achieved a world-wide reputation, as the manufacturers of the Penberthy automatic injector. This injector was not known prior to 1887, and although but four years have elapsed, they report sales to date between 39,000 and 40,000. It is used on the great lakes almost exclusively, also on traction and portable engines, and in all places where there is much jar or motion, its automatic qualities being such that the feed cannot be broken so but that it will start automatically. This feature, together with its simplicity of construction, the parts being removable without disconnecting the injector, and its entire reliability as a boiler feeder has achieved for it an enviable reputation. This firm also manufacture a jet pump that is, for its particular use, equal to their injector; also a very decided novelty in the shape of a spring covered oil cup. A detailed description of articles manufactured by them is condensed in one of the handsomest pamphlets ever shown to the steam using trade, and will be sent to any one interested, on application.—Safety Valve.

**An Error in Comparisons.**

A mistake was made in a recent issue of the REVIEW when it was said that a hoist which the Variety Iron Works is erecting at Huron shows some improvement over the machinery on the Ashtabula docks managed by M. A. Hanna & Co. The intent was to compare the new Huron hoist with similar apparatus now in use on the Minnesota docks at Ashtabula, and put up by the same builders. The hoists on the Ashtabula docks managed by M. A. Hanna & Co. were erected by the King Iron Bridge and Manufacturing Company, and their work is equal to that of any hoisting machinery on the lakes.



**Important Decision in a Raft Collision Case.**

A decision rendered last week by Judge Ricks, sitting in the United States district court at Cleveland, is of general interest to the lake marine at this time, on account of agitation in the matter of raft towing. The case was that of C. E. Benham and others, owners of the schooner H. C. Richards, against the tug Niagara, and was fully tried and argued by Harvey D. Goulder, of Cleveland, proctor of the owners of the Richards, and Judge Swan and F. R. Gillette, of Detroit, for the respondents. The decree is for the libelants and United States District Clerk H. F. Charlton has been appointed as commissioner to take testimony and assess damages. On August 20, the propeller Britannic, bound up the St. Clair river with the schooners Woolson and H. C. Richards in tow, had proceeded as far as a point below Southeast bend in the night and exchanged with the tug Niagara, then approaching from above and descending the river, passing signals of two blasts with the appropriate signal for passing to starboard, which signals were exchanged at a proper and appropriate distance, and the said tow and the said tug approached each other with no notice to those in the tow that any circumstance existed to make the passage dangerous. The Britannic and tow duly starboarded their helms, and made over to and kept the port-hand side of the channel, and were in proper position to pass. The libel alleges that when the Niagara was passing said tow it was discovered that she had in tow a raft of unusual shape and size, which was occupying substantially the whole channel, and was coming down the channel, towed by the Niagara with good headway. The helms of the tow were thereupon starboarded, and they kept in just as close as they could to the port bank, and the Britannic then checked down. It further alleges that there was a dock which made out a little from the shore ahead and on the port bow of the Britannic, and the Richards ran into the bank below with her helm starboarded, notwithstanding which the raft caught the Woolson, (which was the first vessel in the tow) and brought her stern down upon the Richards as the latter lay against the bank, tearing out the rail, stringers and stanchions, and carrying away some of her headgear and her rigging on the starboard side and otherwise damaging her.

The libel says that said raft so towed by the Niagara had, a short time previous to meeting the Britannic and tow, been in collision with some other vessel and been badly broken and disarranged, so that instead of being in the usual and ordinary shape and of the usual size and condition proper for being towed through said river the same was unwieldy, and to a considerable extent unmanageable and innavigable so that it occupied nearly the whole channel at the point of the collision, and was not in ready command of the Niagara and the tug Saugatuck, the other tug astern and attached to said raft, and was not in condition to be towed in that place. The libel avers that the Richards was wholly without fault and that the Niagara was guilty of fault in the following respects and particulars: 1. That she was attempting to navigate said river, having in tow a raft not of proper size and condition to be towed through said river, and was not making a reasonable and ordinary use of said river. 2. That having said raft in tow in its broken, unmanageable and innavigable condition, she gave no notice of these facts to the approaching tow. 3. That, having such a tow, she exchanged the ordinary passing signals with the Britannic, and continued to approach without warning of the dangerous tow she had. 4. In not stopping the raft by means of the tug at the stern of said raft and holding said raft over against the bank of the river and warning approaching craft of the dangerous character and condition of the obstruction when said raft was above Southeast bend, where it could have readily been done and said raft put in condition to proceed.

The testimony in the case very clearly established all that the libel charged in relation to the unmanageable condition of the raft. The owners of the raft had already brought suit in another court against the owners of the propeller Kitty M. Forbes and schooner Mabel Wilson for colliding with the raft previous to the occurrence on which the present case was based and, in the opin-

ion of the court, the respondents rather insisted in their presentation of their defense that the raft was so unmanageable and unwieldy by reason of a previous collision and damage thereto that it could neither be stopped for repairs nor for a more favorable time for descending the river, nor controlled in such a bend as that where this accident took place. The defense seemed to rely largely upon their utter helplessness to control the movements of this raft as sufficient reason for not being held liable for injuries caused thereby. The mate, who was in charge of the tug Niagara at the time of the collision, admits that he had not examined the raft to ascertain its condition after the collision with the Kitty M. Forbes, neither had he been advised by the rear tug or the man in charge of the raft of the damages arising from said collision. Seeing the Britannic and her tow approaching, he says he went first to the port side of his tug and looking back saw the port side of the raft dragging along the rushes on the Canada bank, and then going to the starboard side of the tug he says he remarked to the watchman: "That fellow (referring to the Britannic and tow) can get through there. There is a hole right through there." "The master's characterizing the passageway as a 'hole,'" says the court, "is significant in itself. Immediately he sounded two blasts of the whistle as an invitation to the Britannic and tow to approach. It was clearly the duty of the commanding officer of that tug, before the signal was given, to know that there was a sufficient space upon the starboard side of that raft to permit that tow to pass in safety. His signal was an invitation to the steamer to approach, and a notice to her that in the judgment of the master of said tug there was sufficient channel for the tow to pass in safety. Without undertaking to determine here the legal relations of the tug Niagara and the tug Saugatuck, assisting in navigating that raft at its rear end, or the agent in charge of that raft, I am clearly of the opinion that, primarily, it was the duty of the Niagara to know that a sufficient space in the channel was unobstructed and open to the tow to pass before the two-blast whistle was given. I am just as well satisfied from the evidence in this case that there was not a sufficient space to have justified the master of the tug in inviting the Britannic to pass. It was clearly his duty under the circumstances, to have given a danger signal the moment the headlights of the Britannic came in view. With such a danger signal the Britannic and her tow could have safely stopped below the bend at several places where the raft could have passed without danger."

In conclusion the decision says: "When the Niagara pursued her journey down the river with the raft in the condition described, she took upon herself all the risks that might follow from such a dangerous course. There was nothing in the law to prevent her making the attempt, but she did it at her own risk and peril, and every injury and loss occasioned by the innavigable and unmanageable condition of the raft she ought in justice to pay. I think, under all circumstances developed by the testimony in this case, that the master of the Niagara was censurable for proceeding with his journey. He is especially censurable for having failed in sounding the danger signal, or in not giving notice by sending a tug in advance of him, and at a sufficient distance to notify vessels of the character of the raft he had in tow so as to enable them to seek shelter in such places as the river bank afforded, or choose passing places at such points where the width of the river would make it safe for all concerned. If there had been a reasonable channel on the starboard side of the raft through which the Britannic and her tow could have passed with safety if they had skilfully managed their tow, it might then be proper to consider the claim now made that this collision was caused by the want of care on the part of the Richards. But the master of the Niagara having deliberately invited the Britannic to try her luck in getting through what he called a 'hole,' he cannot now claim a slight sheer or change in the course of any of the tow as having caused the collision complained of. It may not be improper for the court here to remark that in view of the great value of the tonnage daily passing through these rivers and canals connecting our lakes, and in the absence of proper legislation, tugs and parties in charge of rafts must be held to a high degree of care, in the first place as to the proper construction of the rafts, so as to make them manageable and navigable, and in the second place as to the proper care and diligence in transporting them through the lakes and rivers with reference not only to the time and character of the weather when they shall undertake to pass through, but also with reference to their proper handling."

Captains Edward Kelly and John Nelson sat with the court as nautical assessors.



## E. M. B. A.

The full compliment of officers of the grand lodge, recently organized at Buffalo, has not as yet been published. They are as follows: Alex. Clark, grand president; Edward Kelley, first vice president; J. B. Hall, second vice president; Lyman Hunt grand treasurer; W. A. Collier, grand financial secretary; Jas. Hogan, marshal; D. M. Pierce, warden; R. E. Gain, sentinel. The next meeting of grand lodge will be held in Cleveland.

Members recently elected to lodge No. 2, are A. R. Sinclair, D. M. Sinclair, Lew. Carey, P. Kenyon, Eugene Goodwin and N. W. Stewart.

The marine glasses which the MARINE REVIEW offers to the captain writing the best article on "Aids to Navigation," may be seen at the rooms of Lodge No. 4, Cleveland. The lenses are pronounced by good judges to be very fine. One article submitted has been published and others will follow shortly. Spend an evening in writing an article and get a good pair of glasses.

On account of the absence of President-elect John Ivers, the installation of officers of E. M. B. A., No. 2, Port Huron, did not take place last Thursday, but will take place, Thursday, of this week. There are several new applications for membership and they will be balloted for at the next meeting.

The following members were elected at the last meeting of lodge No. 4, Cleveland: J. Denville, A. Oldorf, Harry Rogers, J. C. Thompson, David J. Girardin and John H. Maloy.

## WORK OF THE WASHINGTON DELEGATION.

Captains James Stone, Wm. S. Mack, J. B. Hall and others representatives of lake organizations who went to Washington to assist in securing the passage of Representative Burton's raft bill, were heard before the commerce committees of the house and senate, and it is probable that the bill when reported to congress will be satisfactory to all interests. The representatives of the vessel owners and masters were compelled to make some concessions on the original plans with regard to the size of raft to be allowed under the proposed law, and it is reported from Washington that the congressional committees will report a bill providing that hereafter no raft shall be allowed to go through St. Mary's river larger than 70 by 800 feet and through the St. Clair and Detroit rivers larger than 100 by 1000 feet. All rafts must be handled by at least two tugs of stipulated size. The proposed law will regulate the rafting business only in the rivers and canals connecting the lakes. The delegation also called on Inspector General Dumont, of the steamboat inspection service, with regard to the proposed change to three blasts as a fog signal and the matter of having all tugs towing rafts carry horizontal lights forward so as to distinguish them from the ordinary tow. Gen. Dumont said he would call the attention of the supervising inspectors of steamboats, now in session in Washington, to these matters.

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Cleveland, O., Jan. 6, 1891.

MILLER CHEMICAL ENGINE CO., Room 4, Bratenahl Bldg.  
GENTLEMEN: I had occasion on the 13th of November to use your Extinguisher on board the steamer Queen of the West, of Cleveland. A large lamp used for signal purposes aft, fell about twenty feet and set fire to the whole roof of the engine room. I do not know what the consequences would have been but for the prompt and effectual way in which your extinguisher put out the fire, as the wind was blowing hard and a heavy sea running at the time. I heartily recommend your machine as a fire extinguisher on all classes of steamships. Yours truly,  
JOS. A. NICOLSEN, Master Str. Queen of the West.

182 24th Street,

MILLER CHEMICAL ENGINE CO. Detroit, Mich., Jan 12, 1891.  
DEAR SIR: Going up Lake Huron last fall during a heavy gale of wind and a big sea running, a fire broke out in one of the rooms of the steamer Fayette Brown, through the accidental upsetting of a lamp among some papers, and had gained considerable headway before discovered. By the prompt use of one of your Chemical Engines it was quickly subdued, and I think there was less than a pint of the fluid used. Have no doubt the fire would have given us lots of trouble without some such prompt and easy way of extinguishing it. Since that time I do not think a steamboat properly fitted out without the Miller Chemical Engine. Yours truly,  
C. H. BASSETT, Master Str. Fayette Brown.



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For dimensions of Dry Dock, see page 13.

UNITED STATES ENGINEER OFFICE, 34 West Congress Street, Detroit, Mich., November 28, 1890. Sealed proposals, in triplicate, for furnishing all materials and labor and building the masonry of a lock at St. Mary's Falls Canal, Michigan, will be received at this office until 2 o'clock p.m., January 27, 1891, and then publicly opened. Preference will be given to materials of domestic production or manufacture, conditions of quality and price (import duties included), being equal. Attention is invited to Acts of Congress, approved February 26, 1885, and February 23, 1887, vol. 23, page 332, and vol. 24, page 414, statutes at large. The government reserves the right to reject any or all proposals; also to award the contract upon other considerations than the price. For further information apply at this office, or to the U. S. Engineer Office, Sault Ste. Marie, Mich. O. M. POE, Colonel, Corps of Engineers, Bvt. Brig.-Gen. U. S. A. J-22

UNITED STATES ENGINEER OFFICE, 34 West Congress street, Detroit, Mich., December 27, 1890. Sealed proposals, in triplicate, for furnishing all materials, plant, and labor, and excavating Hay Lake Channel, St. Mary's River, Mich., will be received at this office until 2 o'clock p.m., January 26, 1891, and then publicly opened. Preference will be given to plant and materials of domestic production or manufacture, conditions of quality and price (import duties included) being equal. Attention is invited to Acts of Congress, approved February 26, 1885, and February 23, 1887, vol. 23, page 332, and vol. 24, page 414, Statutes at Large. The government reserves the right to reject any or all proposals, and to waive any informalities in the bids received. For further information apply at this office, or at the United States Engineer Office, Sault Ste Marie, Mich. O. M. POE, Colonel Corps of Engineers, Bvt. Brigadier-General, U. S. A. J-22

PROPOSAL FOR HARBOR WORK, U. S. Engineer Office, Buffalo, N. Y. January 2, 1891. Sealed proposals, in duplicate, for the following harbor work, will be received at this office, until 2 p.m., on Monday, the 2d day of February, 1891, and opened immediately thereafter in presence of bidders: Improving harbor at Erie, Pa.; building and placing cribs and superstructure of about 450 feet extension of North Pier; improving harbor at Dunkirk, N.Y.; rebuilding superstructure of parts of the detached Breakwater and West Pier; building and placing one crib and building about 175 feet of superstructure of West Pier; improving harbor at Oleott, N.Y.; rebuilding parts of superstructure of piers. The attention of bidders is invited to Acts of Congress, of February 28, 1885, and February 23, 1887, Vol. 23, page 332, and Vol. 24, page 414, Statutes at Large. Preference will be given to articles of domestic production or manufacture, conditions of quality and price being equal. Specifications, general instructions to bidders, and blank forms of proposals will be furnished on application to this office. The United States reserves the right to reject any or all bids. AMOS STICKNEY, Major of Engineers, U. S. Army. Jan 8, 15, 22, 29

DREDGING AT OGDENSBURG HARBOR, New York. U. S. Engineer Office, Burlington, Vt., December 22nd, 1890. Sealed proposals, in duplicate, addressed to the undersigned for 270,000 cubic yards, more or less, of dredging: 200,000 yards from the city front channel, and 70,000 yards from the channel near the C.V. R. R. elevators, Ogdensburg Harbor, will be received at this office until 11:30 o'clock a.m., January 22nd, 1891. Attention is invited to the Acts of Congress approved February 26th, 1885, and February 23rd, 1887, Vol. 23, page 332, and Vol. 24, page 414, Statutes at Large. Detailed information can be had on application. M.B. ADAMS, Major of Engineers. Jan. 1-8-21

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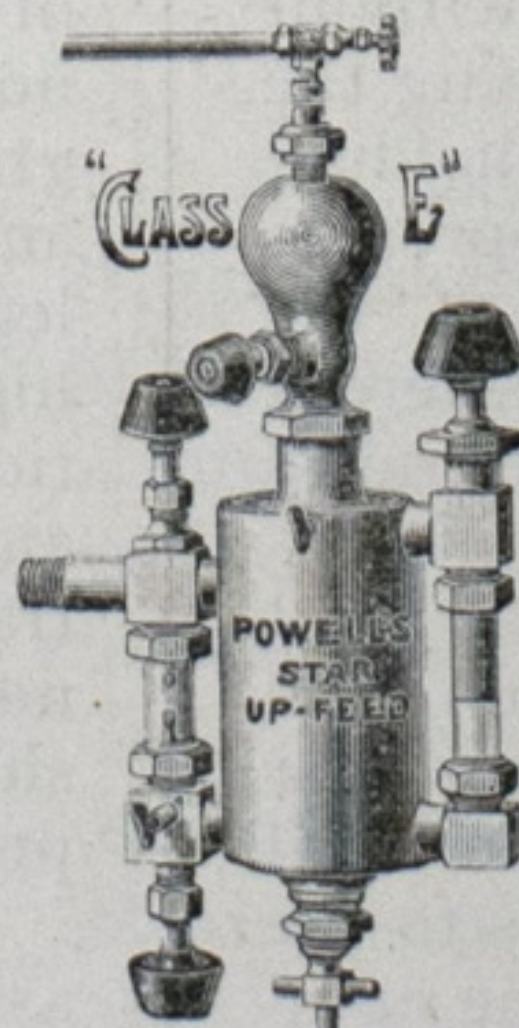
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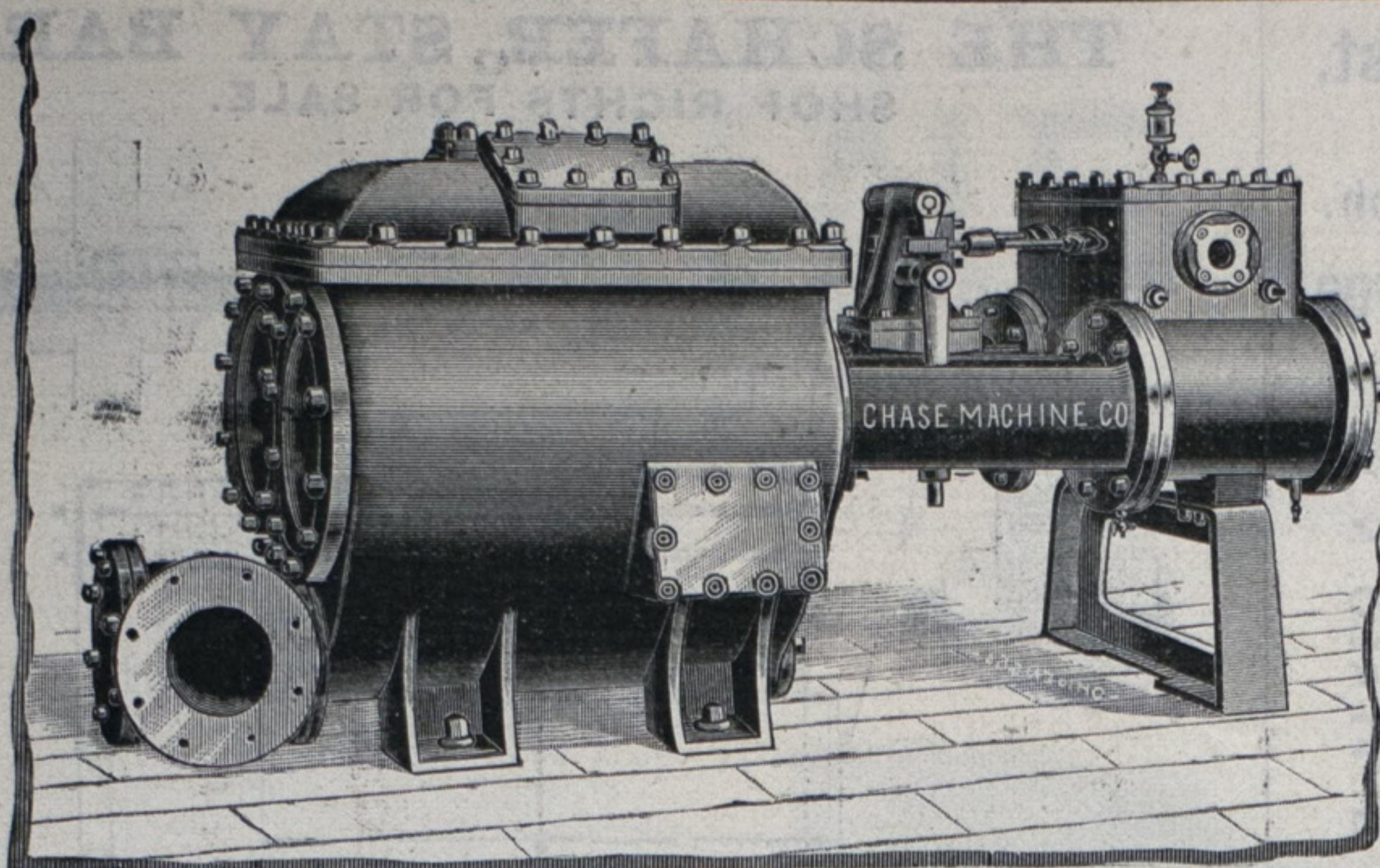
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PROPOSALS FOR MATERIALS FOR HARBOR IMPROVEMENTS. United States Engineer Office, Grand Rapids, Mich., Jan. 10, 1891. Sealed proposals, in triplicate, will be received at this office until noon of January 27, 1891, for furnishing and delivering at Charlevoix, Frankfort, Portage Lake, Manistee, Pentwater, White River, Muskegon, Grand Haven, Black Lake, South Haven, St. Joseph and Benton Harbors, Mich., specified quantities of Norway Pine Piles, White Pine Timber, White Pine Plank, Hemlock Lumber, Iron Tie-rods, Screw and Washer Bolts, Drift Bolts, Spikes, Nails, Stone and Edgings or Brush. Preference will be given to materials of domestic production or manufacture, conditions of quality and price (import duty included) being equal. Attention is invited to Acts of Congress approved February 26, 1885, and February 23, 1887, vol. 23 page 332, and vol. 24 page 414, Statutes at Large. The Government reserves the right to reject any or all proposals. For further information, specifications, etc., address as above. WILLIAM LUDLOW, Major, Corps of Engineers, Bvt. Lt. Col. U. S. A. Jan. 22





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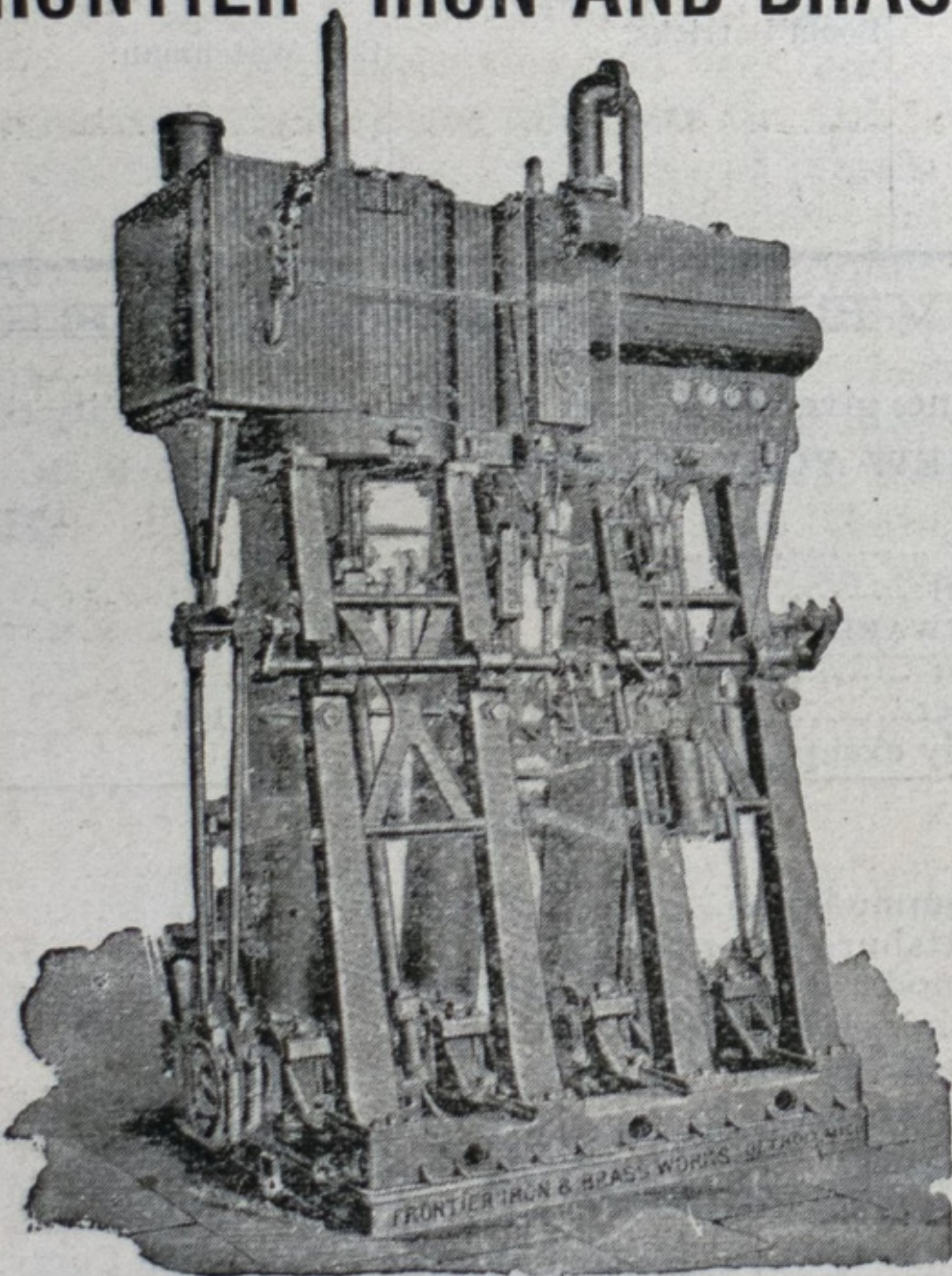
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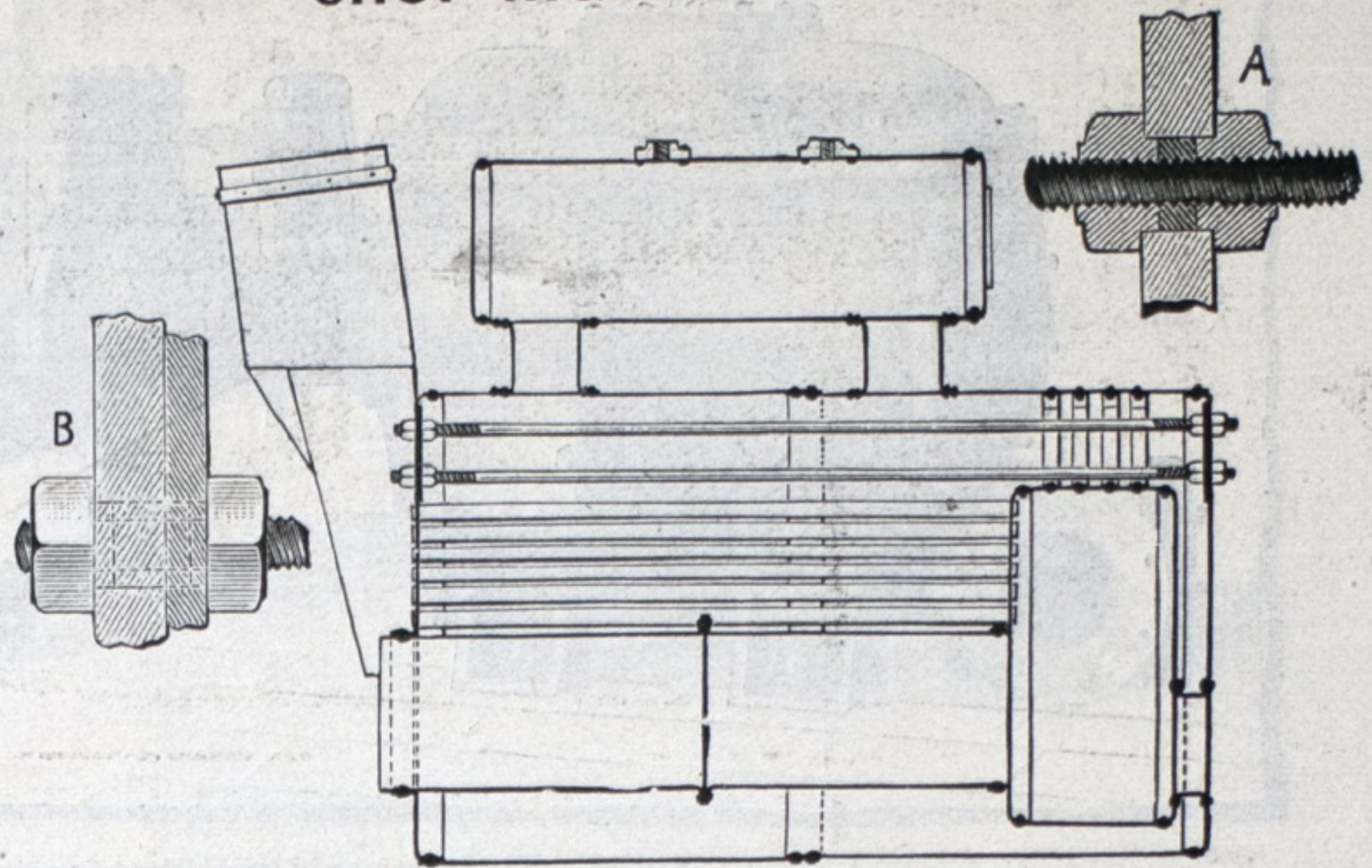
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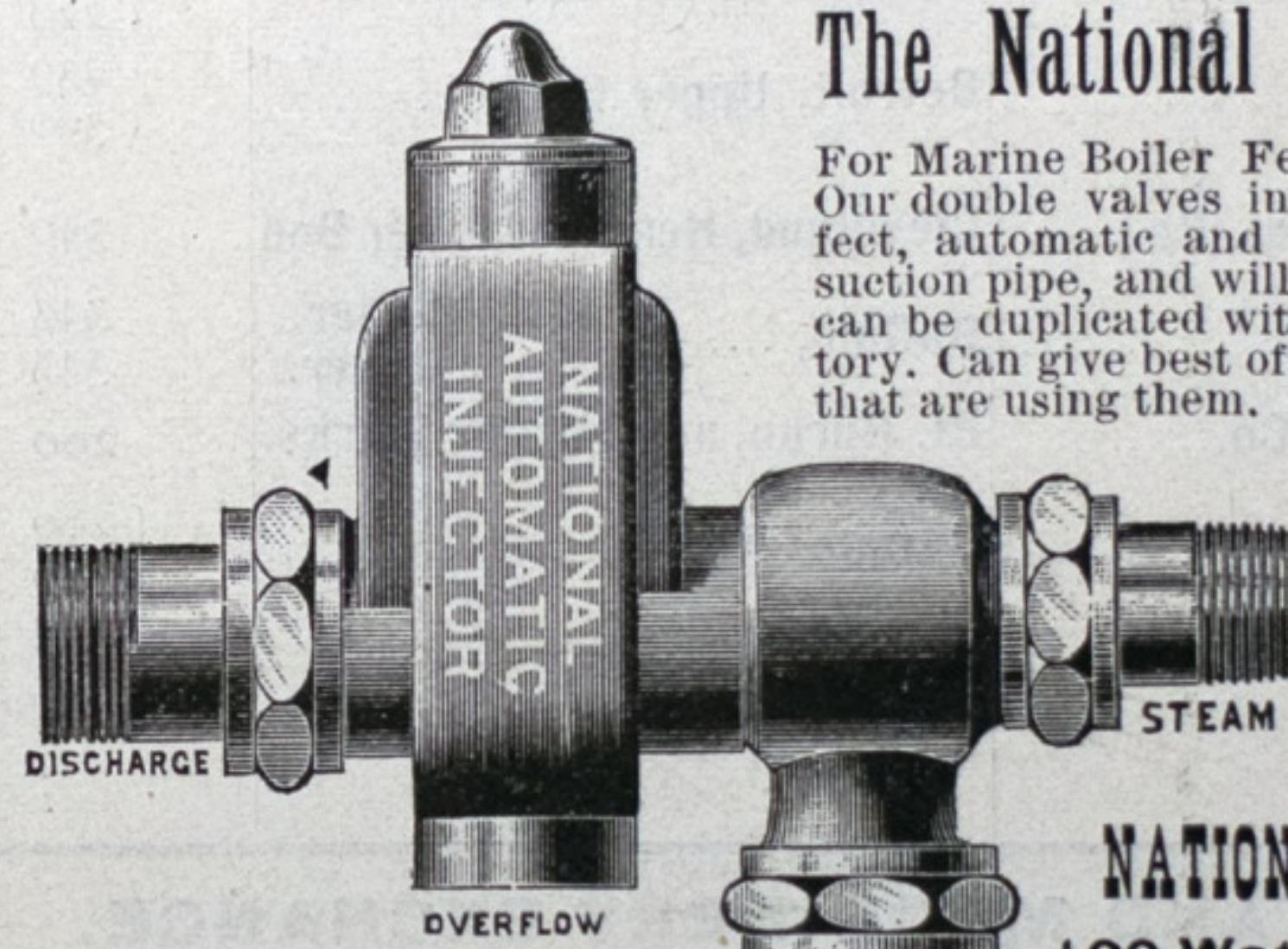


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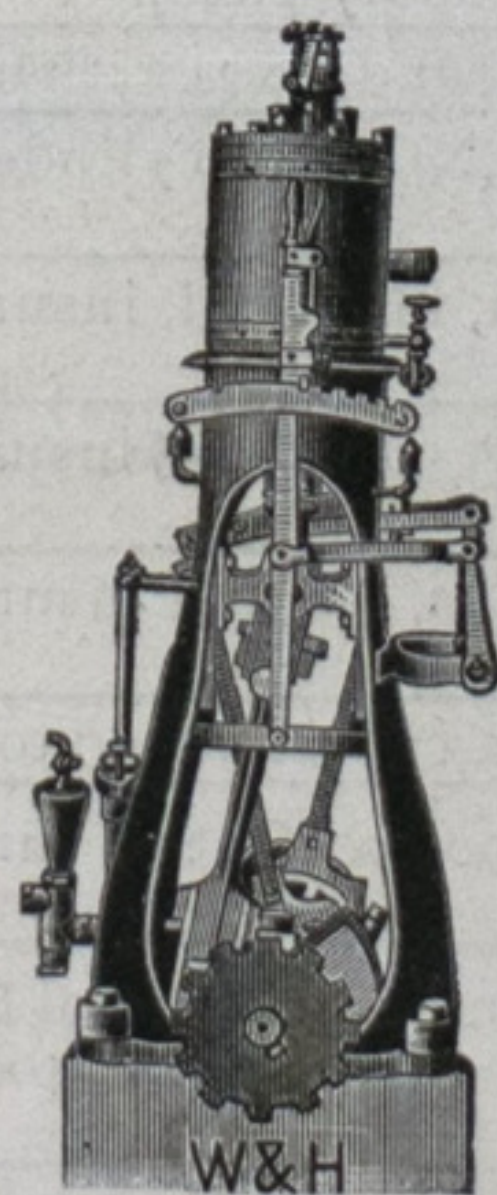
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